

CRYPTOPENAEUS CROSNIERI, A NEW SPECIES
OF SHRIMP, AND A NEW RECORD OF *C. SINENSIS*
(PENAEOIDEA: SOLENOCERIDAE)
FROM AUSTRALIAN WATERS

Isabel Pérez Farfante and Brian Kensley

Abstract.—*Cryptopenaeus crosnieri*, a new species of solenocerid shrimp, is described from four specimens collected in Australian waters. It differs from *C. catherinae* in exhibiting neither a notch nor a depression on the postrostral carina, in having a longer scaphocerite, and in lacking an ischial spine on the third pereopod. Also, the thelycum exhibits a pair of small, flat to weakly convex plates, instead of strong bosses, on the anterior part of sternite XIII. *Cryptopenaeus crosnieri* differs from *C. sinensis* (originally described as the type and only species of the new genus *Crassipenaeus*), in lacking the three rounded thelycal prominences on sternite XIV typical of the latter, and in the presence of a meral spine on the third pereopod.

The solenocerid genus *Cryptopenaeus* was proposed by De Freitas (1979) for *C. catherinae*, a new shrimp taken off southern Mozambique at depths between 310 and 500 m. Recently, three additional members of the genus have been discovered, one of them, *C. sinensis* (Liu and Zhenru, 1983) from the South China Sea, another from the waters of Indonesia, which is being described by A. Crosnier, and the third, described herein, from a locality off eastern Australia. Four specimens of the latter species were collected off the northeast coast of New South Wales by the R/V *Kapala* of the New South Wales Fisheries. The new record of *C. sinensis* is based on a male obtained off the northwest coast of Australia, southwest of Cape Leveque, by the U.S.S.R. R/V *Lira*. This latter species is the type-species of a new genus, *Crassipenaeus* Liu and Zhenru, 1983, which we consider to be a synonym of the earlier *Cryptopenaeus* De Freitas, 1979.

The terminology used in the descriptions has been discussed and illustrated by Pérez Farfante (1969, 1977).

Cryptopenaeus crosnieri, new species

Figs. 1, 2

Material.—Holotype, ♀, Australian Museum, AM-P32481, carapace length 29.5 mm, rostral length 8.5 mm, total length about 102 mm. Type-locality: NE of North Solitary Island, New South Wales, Australia, 29°47–49'S, 153°41'E, 234 m, R/V *Kapala* sta 78-05-07, shrimp trawl. —Paratypes, 1 ♀, Australian Museum, 2 ♀, National Museum of Natural History, Smithsonian Institution, Washington, D.C., USNM 189097, collected with holotype.

Description.—Body relatively robust (Fig. 1); carapace microscopically setose-punctate, abdomen glabrous. Rostrum horizontal, with dorsal margin straight and ventral margin convex, short, its length 0.30 to 0.18 that of carapace, decreasing

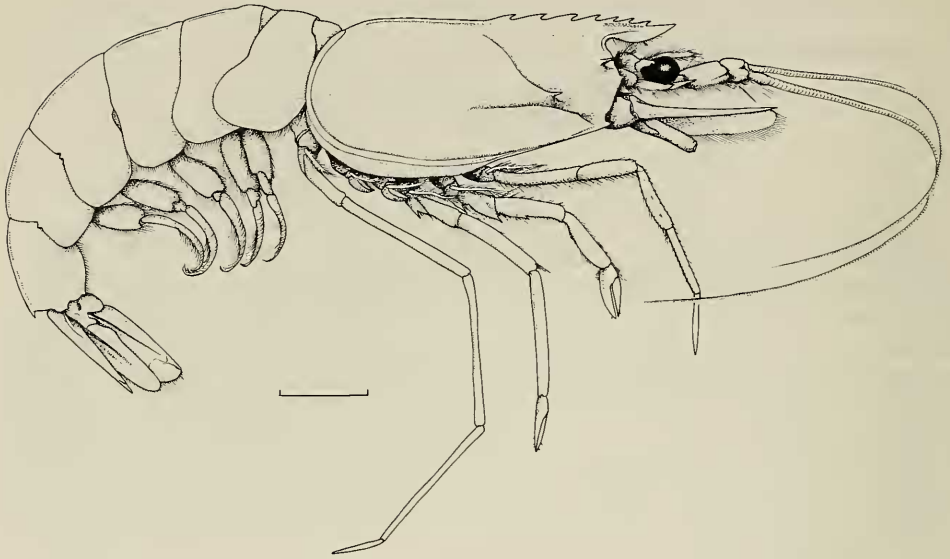


Fig. 1. *Cryptopenaeus crosnieri*, holotype ♀ 29.5 mm carapace length, NE of North Solitary Island, New South Wales, Australia. Lateral view. Scale = 10 mm.

proportionally with increasing size, and in adults reaching between distalmost part of first antennular article and midlength of second. Rostral plus epigastric teeth 7-9, fifth tooth situated at level of orbital margin, last tooth distinctly posterior to apex. Adrostral carina strong, separated from teeth by conspicuous groove, dorsal border of groove covered with narrow band of densely set short setae. Postrostral carina well marked, long, almost reaching posterior margin of carapace and lacking notch or depression. Orbital spine absent; postorbital spine slender, sharp, and long; antennal spine minute; pterygostomial spine strong, with broad base; hepatic spine slender, sharp, and as long as postorbital. Branchiostegal and suprahepatic spines lacking. Gastro-orbital sulcus lacking; cervical sulcus, accompanied by raised, sharp carina, gently sinuous, its dorsal extremity ending distinctly ventral to postrostral carina at about midlength of carapace; hepatic sulcus rather deep, subhorizontal posteriorly, anterior part of sulcus accompanied by sharp carina; branchiocardiac carina almost indistinguishable; submarginal carina well defined.

Antennular peduncle about 0.5 as long as carapace. Prosartema narrow, acute, long, attaining proximal 0.4 length of second antennular article, and bearing long, densely set marginal setae. Stylocerite ending in sharp spine and extending 0.6-0.7 distance between its proximal extremity and mesial base of distolateral spine; latter spine sharp, long, reaching as far as proximal 0.3 of second article. Antennular flagella subequal in length, long, 2.2 times carapace length in shrimp 29.5 mm cl and 1.4 in shrimp 50 mm cl; mesial flagellum slender and subcylindrical throughout its length, lateral flagellum moderately depressed in proximal half where about twice as broad as mesial, then becoming filiform. Scaphocerite exceeding antennular peduncle by as much as 0.25 of its own length; lateral rib

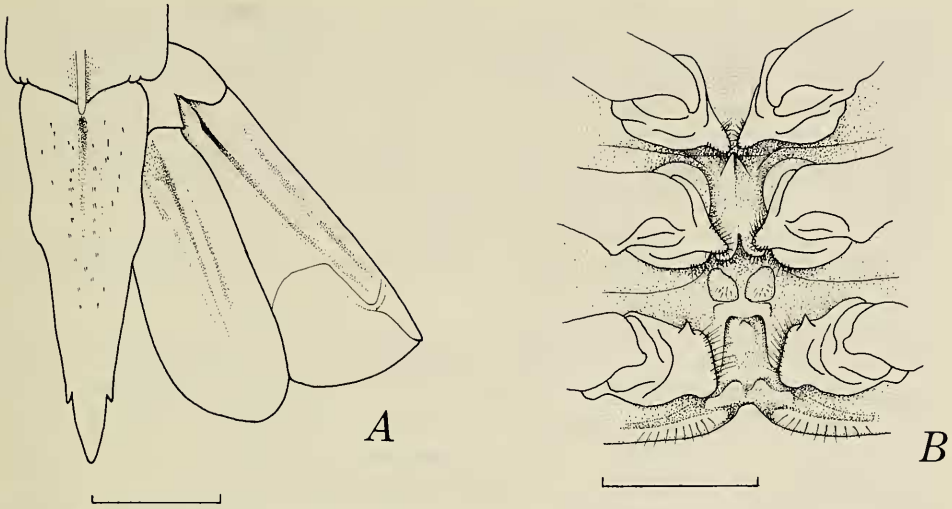


Fig. 2. *Cryptopenaeus crosnieri*, holotype: A, Telson and right uropod, dorsal view; B, Thelycum. Scales: 5 mm.

ending in long spine reaching distal margin of lamella. Antennal flagellum incomplete in all specimens examined.

Mandibular palp reaching between apex of ischiocerite and midlength of carpocerite. Third maxilliped exceeding antennular peduncle by at least length of dactyl and distal extremity, as much as 0.60 length, of propodus. First pereopod extending at least to apex of ischiocerite or as far as distal end of carpocerite. Second pereopod reaching distal end of antennular peduncle or exceeding it by 0.6 length of dactyl. Third pereopod extending to distal end of antennular peduncle or surpassing it by as much as propodus and 0.15 length of carpus. Fourth pereopod overreaching carpocerite by at least distal extremity, or by 0.7 length of dactyl. Fifth pereopod surpassing antennular peduncle by dactyl and at least 0.3 length of propodus or by as much as dactyl and 0.70 length of propodus. Order of pereopods in terms of their maximum anterior extensions: first (shortest), fourth, second, third, and fifth. Third maxilliped falling short of third pereopod. First pereopod armed with elongate acute spine on basis and ischium, and small spine on merus; second pereopod armed with small but sharp spine on basis. Coxa of fifth pereopod in female mesially produced into short plate bearing sharp spine anteromesially.

Abdomen either lacking or bearing weak dorsomedian carina along posterior half of second somite; third through sixth somites with well marked carina, sharp except on third; sixth somite armed with moderately strong tooth at posterior end of carina and small spines posteroventrally. Telson (Fig. 2A) bearing small pair of fixed, posterolateral spines; terminal part short, length about twice basal width; median sulcus moderately deep, extending to about midlength. Rami of uropod subequal in length, falling slightly short or barely surpassing apex of telson; lateral ramus with lateral ridge ending in short spine.

Thelycum (Fig. 2B) with subrectangular plate of sternite XIV bearing pair of deep, longitudinal furrows flanked laterally by strong ridges joined anteriorly by

transverse one; area between furrows raised into low anteromedian protuberance, apical portion of which sometimes produced into minute spine. Pair of small setose anterior plates, abutting transverse ridge, flat or very slightly convex, and with mesial margins diverging anteriorly. Anterior part of sternite XIII with high median ridge produced anteriorly into strong, anteriorly directed blunt tooth. Posterior thoracic ridge produced anteriorly in paired, thick, biconvex processes separated by median depression, ridge strongly inflated posteriorly.

Size.—Females 25–30 mm carapace length, about 91–103 mm total length.

Geographic and bathymetric ranges.—This shrimp has been found off eastern Australia (Fig. 4), at a depth of 234 m.

Discussion.—*Cryptopenaeus crosnieri* can readily be separated from *C. catherinae* by the following characteristics: the lack of a notch or a depression on the postrostral carina posterior to the level of the cervical sulcus; the longer scaphocerite, which overreaches the antennular peduncle by as much as 0.25 of its own length instead of reaching or barely overreaching the peduncle; and the lack of an ischial spine on the third pereopod. Moreover, the thelycum of *C. crosnieri* bears a pair of flat or very slightly convex plates, with divergent mesial margins, on the anterior part of the sternite XIV, rather than a pair of strong, suboval bosses, as it does in *C. catherinae*. The thelycum of *C. crosnieri* also differs strikingly from that of *C. sinensis* by the armature of sternite XIV which in the latter species consists of one anteromedian and two lateral low, rounded prominences.

It seems worth mentioning that in *C. catherinae*, as in *C. crosnieri*, a very minute spine is present on the merus of the third pereopod, a character that is not mentioned by De Freitas in the original description. This meral spine is absent from the male of *C. sinensis* from Australia. Also, as in *C. crosnieri*, sternite XIII in females of *C. catherinae* is armed with a median carina produced anteriorly in a strong tooth, a feature not cited by De Freitas.

Etymology.—It is a pleasure to name this shrimp in honor of Alain Crosnier of O.R.S.T.O.M. and the Muséum National d'Histoire Naturelle, Paris, who has contributed greatly to our knowledge of decapod Crustacea.

Cryptopenaeus sinensis (Liu and Zhenru, 1983)

Fig. 3

Crassipenaeus sinensis Liu and Zhenru, 1983:171, fig. 1.

Material.—1 ♂, Zoological Museum of the Moscow State University, off NW Australia, SW of Cape Leveque, 17°35'48"S, 119°33'00"E, 320–335 m, 28 May 1973, R/V *Lira* haul 63, coll. O. Petrov.

Supplementary description of male genitalia.—Petasma (Fig. 3C, D) cincinnulate along proximal half of dorsomedian lobe. Ventromedian lobule with membranous proximal part bordered by lateral rib, latter expanding and then merging distally with heavy sclerotized elongate plate; latter with subcircular terminal flap bearing marginal row of minute spinules and produced proximolaterally in concave, subcylindrical process; dorsal rim of concavity armed with five teeth (in only male available). Dorsolateral lobule supported by heavy rib extending its length and terminating in subacute projection at medial base of terminal part. Ventrolateral lobule heavily sclerotized, with ventral costa produced distally in

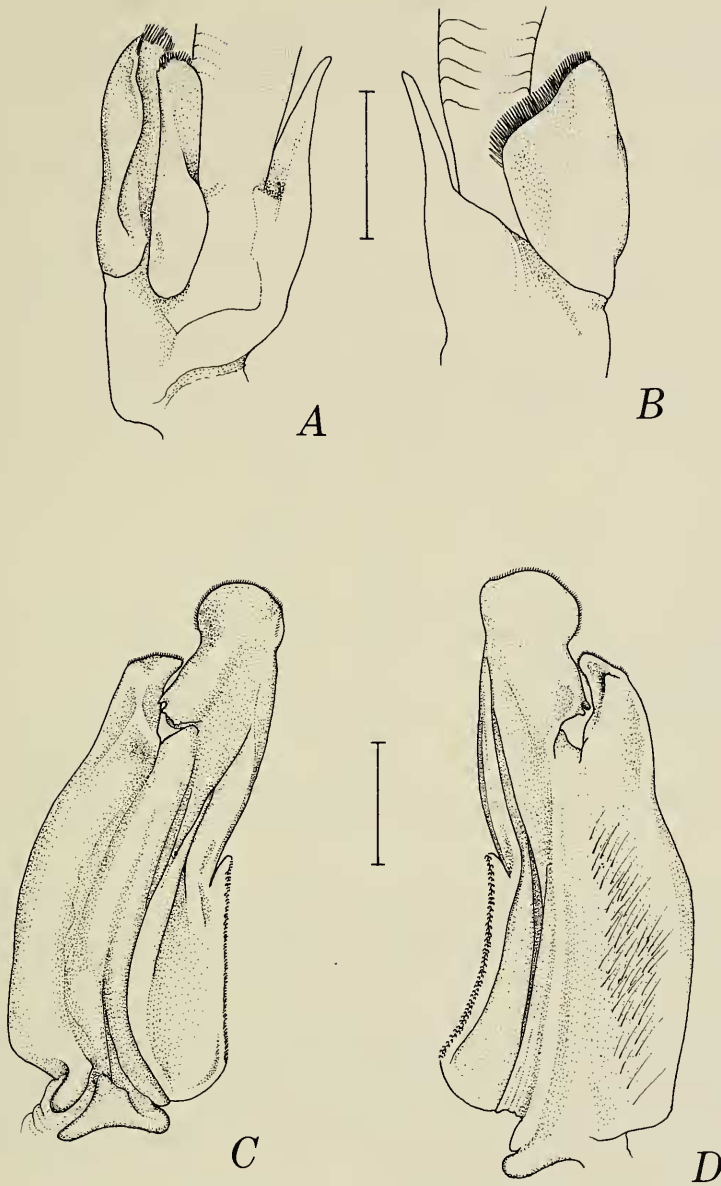


Fig. 3. *Cryptopenaeus sinensis*, ♂ 40 mm carapace length, off NW Australia: A, Ventral view of left appendices masculina and interna, and distolateral spur; B, Dorsolateral view of left appendix masculina and distolateral spur; C, Dorsal view of left half of petasma; D, Ventral view of same. Scales: A, B = 2 mm, C, D = 3 mm.

angular projection, its apex curving towards subcylindrical process and bearing marginal row of very minute spinules.

Appendix masculina (Fig. 3A, B) roughly trapezoidal, convex dorsally, excavate ventrally, with distal margin oblique and bearing short, stout setae; appendix interna subequal in length to appendix masculina, with lateral base expanded,



Fig. 4. Australian localities from which *Cryptopenaeus crosnieri* and *C. sinensis* were collected.

and rounded distal margin armed distally with brush of stout setae. Basal sclerite with lateral wall produced distolaterally in foliaceous projection terminating in blunt spur.

Discussion.—Liu and Zhenru (1983) proposed the new genus *Crassipenaeus* for their new species *C. sinensis*, recorded from 261 m in the South China Sea. Having compared the description of this genus with that of *Cryptopenaeus* De Freitas, 1979, it has become obvious that there are no significant differences between the two taxa to justify their separation. Consequently, we regard *Crassipenaeus* as a synonym of the earlier *Cryptopenaeus*.

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(IPF) National Marine Fisheries Service, Systematics Laboratory, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560; (BK) Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560.